

section 151 is longer than housing section 152 and terminates with a couple of bearing rings 171. These rings fit within a complementary structure 172 within housing section 152 (shown in cut-away) to securely yet rotatably couple the two housing sections together. There is sufficient space within coupling structure 150 to house battery 148, yet the coupling structure or bridge (in this or other embodiments) it is still sized for ready carrying by hand.

**[0024]** FIGS. 6 and 7 show another embodiment for coupling the two platform sections. The embodiment of FIGS. 6-7 is similar to that for FIGS. 4-5, yet the two bearing rings 271 are provided on opposite sides of the cavity 249 rather than adjacent one another on one side. It should also be recognized that the battery (and cavity) may be within a bearing, i.e., a bearing encircling the battery, for example, located laterally inside of the positions shown in FIGS. 6-7.

**[0025]** FIG. 8 shows yet another embodiment of an auto-balancing device 310 in accordance with the present invention. Device 310 is similar to that of device 210 of FIGS. 6-7, yet one bearing ring 373 is smaller than the other 371.

**[0026]** It can be seen in FIG. 6 that bearing 271 has a greater cross-sectional dimension than cavity 249, and in FIG. 8 that bearing 371 has a greater cross-sectional dimension than cavity 349.

**[0027]** While the invention has been described in connection with specific embodiments thereof, it will be understood that it is capable of further modification, and this application is intended to cover any variations, uses, or adaptations of the invention following, in general, the principles of the invention and including such departures from the present disclosure as come within known or customary practice in the art to which the invention pertains and as may be applied to the essential features hereinbefore set forth, and as fall within the scope of the invention and the limits of the appended claims.

1. An auto-balancing transportation device, comprising:  
a first foot platform section having a first foot platform, a first wheel, a first drive motor and a first sensor;  
a second foot platform section having a second foot platform, a second wheel, a second drive motor and a second sensor;  
a control circuit that drives the first wheel towards auto-balancing the first foot platform section based on data from the first sensor and that drives the second wheel towards auto-balancing the second platform section based on data from the second sensor; and  
a coupling structure that couples the first foot platform section and the second foot platform section to one another such that the first and second platform sections are movable in fore-aft tilt relative to one another; and  
a battery;  
wherein the coupling structure is configured to define a cavity that holds the battery.

2. The device of claim 1, wherein the first wheel is located vertically under the first foot platform and the second wheel is located vertically under the second foot platform.

3. The device of claim 1, wherein the coupling structure includes first and second housing sections, and wherein the first housing section extends more than half of the distance between the first and second platform sections, and fits within a complementary recess defined by the second housing section.

4. The device of claim 1, wherein the coupling structure includes a first section extending from the first foot platform

and a second section extending from the second foot platform, and the first and second sections are coupled through a bearing arrangement.

5. The device of claim 4, wherein the bearing arrangement includes a first bearing and a second bearing that are spaced from one another and arranged in parallel.

6. The device of claim 5, wherein the battery is located between the first and second bearings.

7. The device of claim 4, wherein the battery is located, at least in part, within the bearing arrangement.

8. The device of claim 1, wherein the coupling structure includes a first section extending from the first foot platform and a second section extending from the second foot platform, and the first and second sections are coupled through a non-ball-bearing bearing arrangement.

9. The device of claim 1, wherein the coupling structure includes a first bearing of a given annular size and a second bearing of a different annular size than the first bearing.

10. The device of claim 1, wherein the cross-sectional dimension of the cavity in the line of travel of the device is less than the cross-sectional dimension of a bearing in the line of travel of the device.

11. An auto-balancing transportation device, comprising:  
a first foot platform section having a first foot platform, a first wheel, a first drive motor, and a first sensor;

a second foot platform section having a second foot platform, a second wheel, a second drive motor, and a second sensor;

a control circuit that drives the first wheel towards auto-balancing the first foot platform based on data from the first sensor and that drives the second wheel towards auto-balancing the second foot platform based on data from the second sensor; and

a coupling structure that couples the first foot platform section and the second foot platform section to one another such that the first and second foot platforms are movable in fore-aft tilt relative to one another;

a battery located at least in part within the coupling structure;

wherein the first wheel is located vertically under the first foot platform and the second wheel is located vertically under the second foot platform.

12. The device of claim 11, wherein the coupling structure includes first and second housing sections, and wherein the first housing section extends more than half of the distance between the first and second platform sections, and fits within a complementary recess defined by the second housing section in such a manner that the first and second housing sections rotate in fore-aft relative to one another.

13. The device of claim 11, wherein the coupling structure includes a first section extending from the first foot platform and a second section extending from the second foot platform, and the first and second sections are coupled through a bearing arrangement.

14. The device of claim 13, wherein the bearing arrangement includes a first bearing and a second bearing that are spaced from one another and arranged in parallel.

15. The device of claim 14, wherein the battery is located between the first and second bearings.

16. The device of claim 13, wherein the battery is located, at least in part, within the bearing arrangement.

17. The device of claim 11, wherein the coupling structure includes a first section extending from the first foot platform and a second section extending from the second foot plat-